Maths Workshop Presentation 2017

INTERNATIONAL SCHOOL HAARLEM

OUTCOMES FROM TODAY'S WORKSHOP-

- TO GIVE SOME UNDERSTANDING OF THE NUMBER STRAND OF THE MATHS CURRICULUM FROM FOUNDATION STAGE THROUGH TO THE END OF KS2 HERE AT ISH.
- TO GIVE SOME STRATEGIES FOR SUPPORT AT HOME.

Here at ISH we follow the UK Primary curriculum. We use a MATHS MASTERY approach.

This relies on children following a strategy which uses CONCRETE- PICTORIAL- and then ABSTRACT representations

MATHS MASTERY IS AN ENQUIRY BASED APPROACH MEANS THAT THE CHILDREN ARE TAUGHT A PARTICULAR MATHS SKILL IN A RANGE OF DIFFERENT CONTEXTS TO ENSURE A SOLID UNDERSTANDING OF THAT CONCEPT.

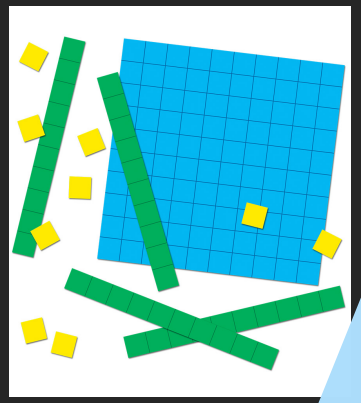
Our Maths Curriculum consists of four strands

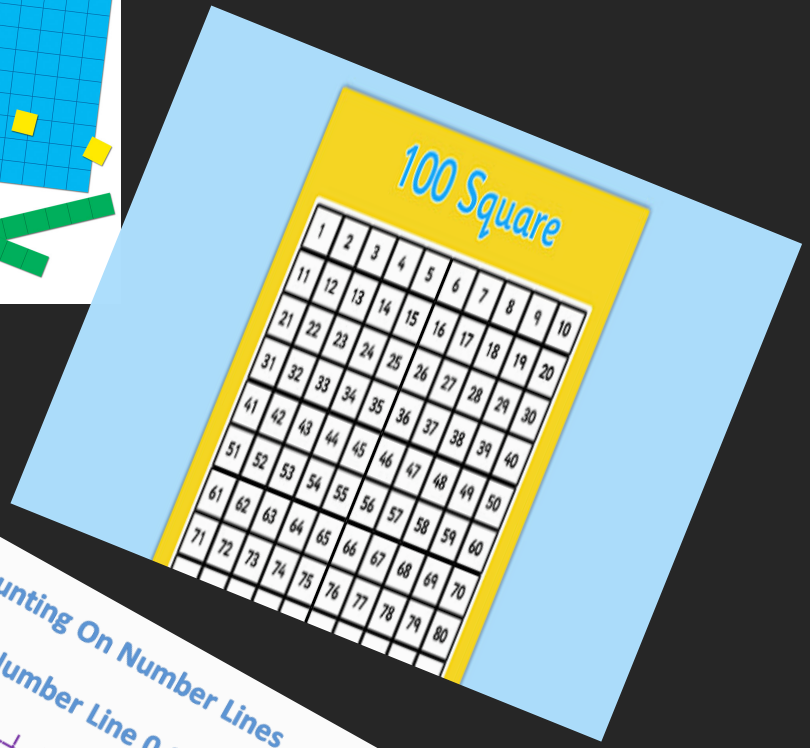
- Number Sense
- Additive reasoning (addition and subtraction)
- Multiplicative Reasoning (division and multiplication)
- Geometric Reasoning (shape)

During our yearly programme of study these concepts are revisited in a spiral way to reinforce and extend understanding

(Measures and statistics are included throughout as contexts for all four strands)

INTERNATIONAL SCHOOL HAARLEM





Today's workshop focuses on NUMBER /ADDITIVE REASONING

FOUNDATION STAGE – ACACIA CLASS AND JACARANDA CLASS

- In Foundation Stage the children are engaging in a hands on enquiry based approach where one of the main focuses in Number is to develop 1:1 correspondence and early addition skills such as number bonds to ten (i.e. 10+0, 9+1,8+2,7+3, 6+4,5+5)using concrete operations in a range of different contexts-

(examples- counting beads, Numecon,Snap cubes)

Today's workshop focuses on NUMBER /ADDITIVE REASONING

KEY STAGE 1 – WILLOW CLASS

- Concrete operations continue to be used in KS1 particularly when introducing a new concept and consolidating understanding of number bonds to ten and then to twenty)

(Show examples- Numecon, Snapcubes, Base ten, counters)

- Pictorial representations such as number lines and number squares are used extensively to model idea of counting on and counting in steps of 5,10 from zero and then from any given number. (Model use of a number line for counting on)

SUPPORT STRATEGIES AT HOME

FOUNDATION STAGE

BRING MATHS INTO EVERYDAY LIFE AT HOME

- SETTING THE TABLE AT HOME FOR DINNER

- COUNTING TOYS IN AND OUT OF BOXES PRACTISING 1:1 CORRESPONDENCE (TOUCHING EACH OBJECT AS THE NUMBER IS SAID)
- MAKING SETS OF OBJECTS AND THEN COUNTING HOW MANY ALTOGETHER FROM BOTH SETS (EARLY ADDITION SKILLS)
- PLAYING “I SPY A NUMBER” SPOTTING NUMBER IN THE ENVIRONMENT WHILST OUT AND ABOUT.

SUPPORT STRATEGIES AT HOME

KEY STAGE ONE- WILLOW CLASS

As with Foundation Stage bring Maths into your day to day life by giving simple challenges to your child that allow them to apply their addition and subtraction skills.

- Baking
- Shopping (Adding/subtracting simple amounts of money)
- Playing board games that involve dice e.g Snakes and ladders
- Playing cards/dominoes
- Telling the time and then working out how many minutes elapsed between two times .
- Reading a calendar working out how many days left in a month
- Working out how many days until a special date such as a birthday.

INTERNATIONAL SCHOOL HAARLEM

SUGGESTED WEBSITES

For KS1 and Foundation Stage

- EDUCATION CITY- school site that has many maths and other resources to consolidate and enhance learning

KS1 will shortly be receiving their usernames and password details. Foundation Stage will follow sometime after Christmas.

- NUMBERJACKS – You can view many episodes for free on Youtube which cover a range of themes within maths and are pitched at various levels from Foundation stage upwards
- CBEEBIES- Many free games online suitable for Foundation Stage (Also suitable for those children in KS1 that need some extra practice on basic math skills)

UPPER PRIMARY- Oak, Redwood and Sequoia

What are we aiming for?

How do we get there?

What support can be given at home?

INTERNATIONAL SCHOOL HAARLEM

Number = Calculation

What are we aiming for?

'Pure' maths

Mental maths strategies

Formal written methods

Reasoning with maths

Higher order thinking skills- investigating and exploring concepts

Solving problems

Applying knowledge to solve a practical or word problem.

Mental maths strategies are the foundation of successful maths development

Mentally add and subtract 2 digit numbers

Is the aim for most children by the end of their Group 4 year. This develops in Group 5.

Highlights the need for secure number bond and place value knowledge……*a working knowledge.*

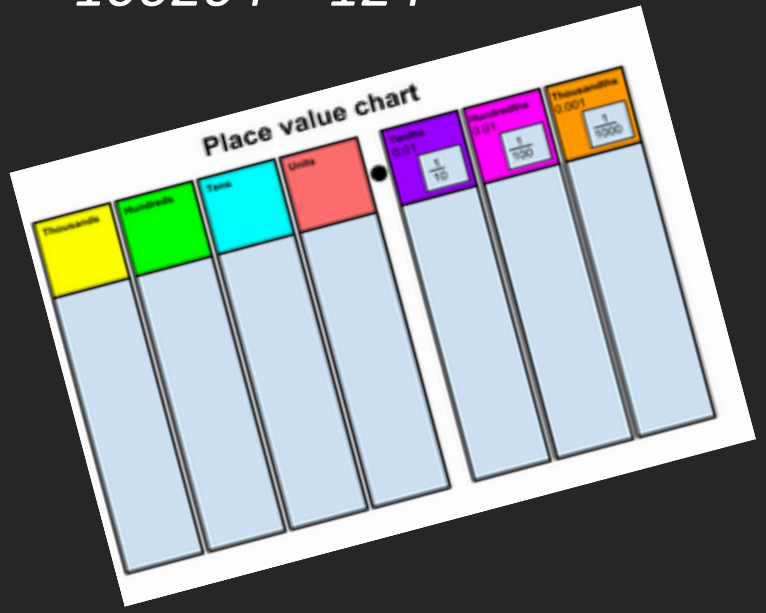
INTERNATIONAL SCHOOL HAARLEM

Place value

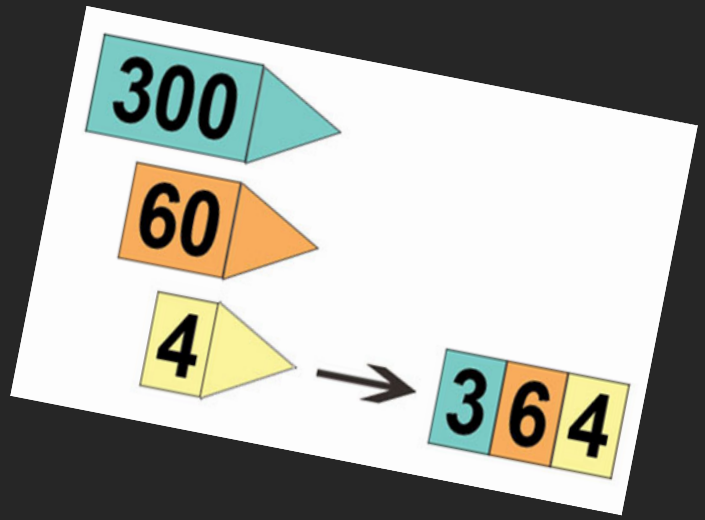
The value of the place of a digit in a numeral.

What is the digit really?

100204 = 124



1000300708 = 1378



A working knowledge of the value of each digit helps to develop mental maths strategies

e.g 34 x 3 = *using mental methods*

30 x 3 =

30 x 3 = 90 OR

(3 x 3) = 9 'put the 0 back' = 90

4x3 = 12

90 + 10 + 2= 102

A working knowledge of number bonds and the relationship between numbers

number facts, familiarity, repertoire of mental calculation strategies

e.g 25 x 8 = *using mental methods*

25 *Is a far more complex problem than…..*

X8

thinking

25 x 8 is actually double 25 x 4…..*and we know from our number fact knowledge that 25 x 4 is 100 so double this would be 200.*

INTERNATIONAL SCHOOL HAARLEM

Moving onto formal written calculations

- At every stage, teachers first use examples that children can easily do mentally
- Children then see how the steps in a written procedure link to what they do in their heads
- They then move to using numbers that cannot easily be dealt with mentally, including money and decimal numbers
- Partitioning and place value are crucial concepts and estimation of size of answers is essential.

Addition by partitioning

Column Addition

- 45 + 32 = 77
  40 + 30 = 70
  5 + 2 = 7

425 + 143

HU	T	U
400	+ 20	+ 5
100	+ 40	+ 3
500	+ 60	+ 8 = 568

Carrying

47 + 36 = 83

40 + 7

30 + 6

80 + 3

10

46892

+ 32758

79650

1 1 1

12.5 + 23.7

12.5

+ 23.7

36.2

1

34.5 + 27.43

34.50

+ 27.43

61.93

1

Subtraction by partitioning or decomposition

Column Subtraction

58 - 32

50 + 8

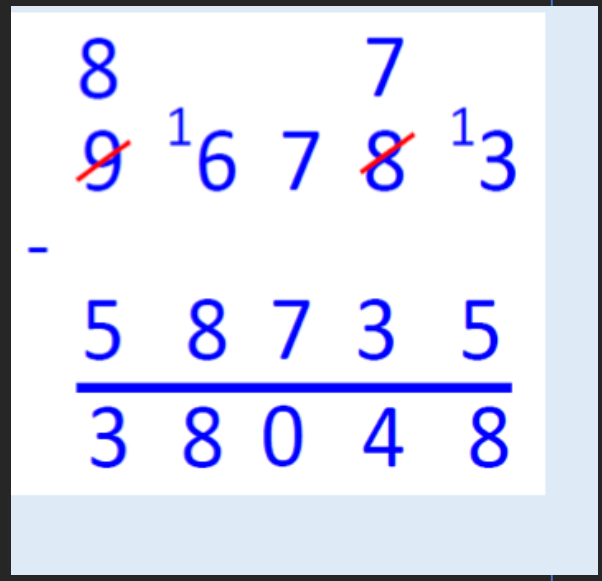
- 30 + 2

20 + 6 = 26

425 - 143

Hundreds	Tens	Units
~~3~~400	120	5
-100	40	3

200 + 80 + 2 = 282



Multiplication by partitioning

Stage 1

$16 \times 3 = (10 \times 3) + (6 \times 3)$

$= 30 + 18$

$= 48$

Formal methods for multiplication

Grid method 35 x 7=

×	30	5
7	210	35

210 + 35 = 245

56 x 27 =

x	50	6	
20	1000	120	1120
7	350	42	392
			1512

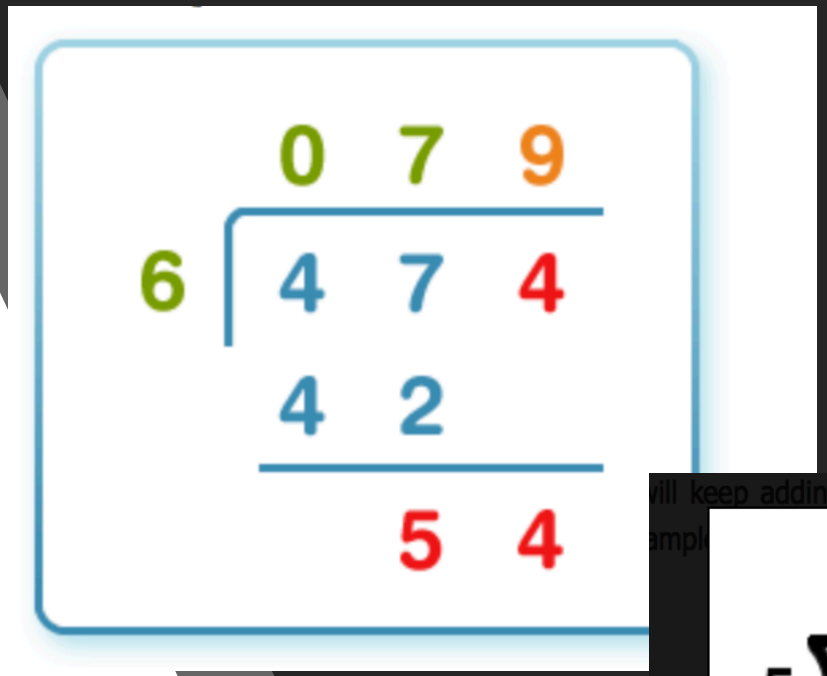
56 × 20

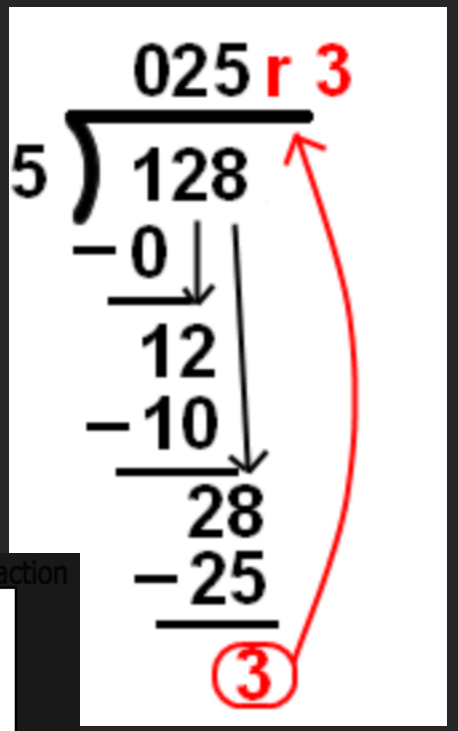
56 × 7

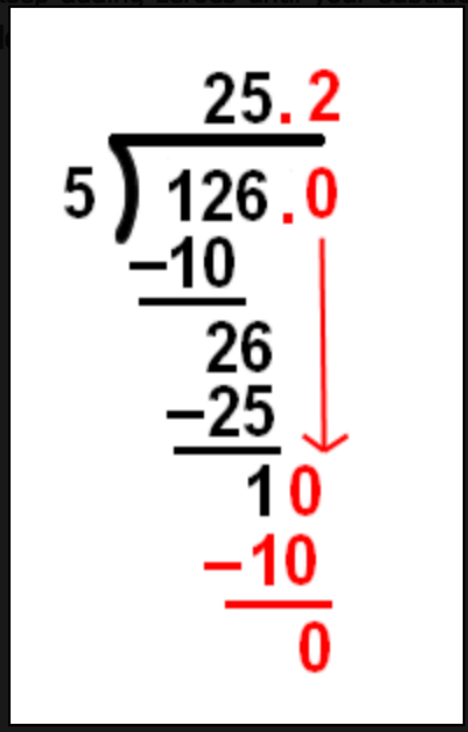
$$\begin{array}{r} 56 \\ \times\ 27 \\ \hline 1120 \\ 392 \\ \hline 1512 \\ 1 \end{array}$$

$$\begin{array}{r} 72 \\ \times\ 34 \\ \hline 288 \\ 2160 \\ \hline 2448 \end{array}$$

Division







Word Problems (1, 2 or more steps)

A man buys 6 boxes of apples. There are 14 apples in each box. How many apples has he bought? He needs to share the apples between 19 people. How many apples will they have each? Will there be any left?

True or False

The sum of four even numbers is divisible by 4

Reasoning problems

Sometimes, always, never

If you add two whole numbers that end in 6 and 8, the answer will end in 2.

- Ask your child to teach you a maths method. Make a short video clip.
- Complete some calculations for your child. Make mistakes. Encourage them to mark your work!
- Encourage mental maths strategies in real life situations.
- Practise, practise, practise multiplication tables, division facts and number bonds.